## **RAW SEQUENCE LISTING**

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number:	10/620,787A
Source:	1FW16,
Date Processed by STIC:	7/19/06

## ENTERED



IFW16

RAW SEQUENCE LISTING DATE: 07/19/2006
PATENT APPLICATION: US/10/620,787A TIME: 08:57:20

Input Set : A:\5130000006 Sequence Listing.txt
Output Set: N:\CRF4\07192006\J620787A.raw

```
Simms, John J.
        Qiu, Zhiyong
 7 <120> TITLE OF INVENTION: Immunogenic Compositions Derived from Poxviruses and Methods
        Using Same
10 <130> FILE REFERENCE: 51300-00006
12 <140> CURRENT APPLICATION NUMBER: 10/620,787A
13 <141> CURRENT FILING DATE: 2003-07-15
15 <150> PRIOR APPLICATION NUMBER: 60/396,293
16 <151> PRIOR FILING DATE: 2002-07-15
18 <160> NUMBER OF SEQ ID NOS: 33
20 <170> SOFTWARE: PatentIn version 3.3
22 <210> SEQ ID NO: 1
23 <211> LENGTH: 250
24 <212> TYPE: PRT
25 <213> ORGANISM: Vaccinia virus
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37 Lys Cys Asp Ile Glu Ile Gly Asn Phe Tyr Ile Arg Gln Asn His Gly
41 Cys Asn Leu Thr Val Lys Asn Met Cys Ser Ala Asp Ala Asp Ala Gln
45 Leu Asp Ala Val Leu Ser Ala Ala Thr Glu Thr Tyr Ser Gly Leu Thr
                       70
                                           75
49 Pro Glu Gln Lys Ala Tyr Val Pro Ala Met Phe Thr Ala Ala Leu Asn
                   85
                                       90
53 Ile Gln Thr Ser Val Asn Thr Val Val Arg Asp Phe Glu Asn Tyr Val
               100
                                   105
57 Lys Gln Thr Cys Asn Ser Ser Ala Val Val Asp Asn Lys Leu Lys Ile
                               120
61 Gln Asn Val Ile Ile Asp Glu Cys Tyr Gly Ala Pro Gly Ser Pro Thr
65 Asn Leu Glu Phe Ile Asn Thr Gly Ser Ser Lys Gly Asn Cys Ala Ile
                       150
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69 Lys Ala Leu Met Gln Leu Thr Thr Lys Ala Thr Thr Gln Ile Ala Pro
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                                       170
73 Lys Gln Val Ala Gly Thr Gly Val Gln Phe Tyr Met Ile Val Ile Gly
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77 Val Ile Ile Leu Ala Ala Leu Phe Met Tyr Tyr Ala Lys Arg Met Leu
          195
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78
                               200
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3 <110> APPLICANT: Simard, John

of

Input Set : A:\5130000006 Sequence Listing.txt
Output Set: N:\CRF4\07192006\J620787A.raw

81 Phe Thr Ser Thr Asn Asp Lys Ile Lys Leu Ile Leu Ala Asn Lys Glu 85 Asn Val His Trp Thr Thr Tyr Met Asp Thr Phe Phe Arg Thr Ser Pro 230 235 89 Met Val Ile Ala Thr Thr Asp Met Gln Asn 93 <210> SEQ ID NO: 2 94 <211> LENGTH: 250 95 <212> TYPE: PRT 96 <213> ORGANISM: Vaccinia virus 98 <400> SEQUENCE: 2 100 Met Gly Ala Ala Ala Ser Ile Gln Thr Thr Val Asn Thr Leu Ser Glu 10 104 Arg Ile Ser Ser Lys Leu Glu Glu Ala Asn Ala Ser Ala Gln Thr 20 25 108 Lys Cys Asp Ile Glu Ile Gly Asn Phe Tyr Ile Arg Gln Asn His Gly 112 Cys Asn Leu Thr Val Lys Asn Met Cys Ser Ala Asp Ala Asp Ala Gln 55 116 Leu Asp Ala Val Leu Ser Ala Ala Thr Glu Thr Tyr Ser Gly Leu Thr 120 Pro Glu Gln Lys Ala Tyr Val Pro Ala Met Phe Thr Ala Ala Leu Asn 90 124 Ile Gln Thr Ser Val Asn Thr Val Val Arg Asp Phe Glu Asn Tyr Val 100 105 128 Lys Gln Thr Cys Asn Ser Ser Ala Val Val Asp Asn Lys Leu Lys Ile 115 120 125 132 Gln Asn Val Ile Ile Asp Glu Cys Tyr Gly Ala Pro Gly Ser Pro Thr 135 136 Asn Leu Glu Phe Ile Asn Thr Gly Ser Ser Lys Gly Asn Cys Ala Ile 150 155 140 Lys Ala Leu Met Gln Leu Thr Thr Lys Ala Thr Thr Gln Ile Ala Pro 170 144 Arg Gln Val Ala Gly Thr Gly Val Gln Phe Tyr Met Ile Val Ile Gly 180 185 148 Val Ile Ile Leu Ala Ala Leu Phe Met Tyr Tyr Ala Lys Arg Met Leu 195 200 152 Phe Thr Ser Thr Asn Asp Lys Ile Lys Leu Ile Leu Ala Asn Lys Glu 210 215 220 156 Asn Val His Trp Thr Thr Tyr Met Asp Thr Phe Phe Arg Thr Ser Pro 157 225 230 235 160 Met Val Ile Ala Thr Thr Asp Met Gln Asn 245 164 <210> SEQ ID NO: 3 165 <211> LENGTH: 250 166 <212> TYPE: PRT 167 <213> ORGANISM: Variola virus 169 <400> SEQUENCE: 3 171 Met Gly Ala Ala Ala Ser Ile Gln Thr Thr Val Asn Thr Leu Ser Glu

Input Set : A:\5130000006 Sequence Listing.txt
Output Set: N:\CRF4\07192006\J620787A.raw

172	1				5					10					15	
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176				20					25					30		
179	Lys	Cys	Asp	Ile	Glu	Ile	Gly	Asn	Phe	Tyr	Ile	Arg	Gln	Asn	His	Gly
180	-	-	35				_	40		_		_	45			_
183	Cys	Asn	Leu	Thr	Val	Lys	Asn	Met	Cys	Ser	Ala	Asp	Ala	Asp	Ala	Gln
184	•	50				-	55		•			60		-		
187	Leu	Asp	Ala	Val	Leu	Ser	Ala	Ala	Thr	Glu	Thr	Tyr	Ser	Gly	Leu	Thr
188		•				70					75	•		-		80
		Glu	Gln	Lvs	Ala	Tvr	Val	Pro	Ala	Met	Phe	Thr	Ala	Ala	Leu	Asn
192				-1-	85	-1-				90					95	
	Ile	Gln	Thr	Ser		Asn	Thr	Val	Val		Asp	Phe	Glu	Asn		Val
196		•		100				-	105					110	- 2	
	Lvs	Gln	Thr		Asn	Ser	Ser	Ala		Val	Asp	Asn	Lvs		Lvs	Ile
200	-1~	<b></b>	115	-1-				120					125		-1-	
	Gln	Asn		Tle	Tle	Asp	Glu		Tvr	Glv	Ala	Pro		Ser	Pro	Thr
204	·	130	<b>,</b> , ,			1100	135	O <sub>I</sub> D	-1-			140				
	Asn		Glu	Phe	Tle	Asn		Glv	Ser	Ser	Lvs	Gly	Asn	Cvs	Ala	Tle
208			<b></b>			150		<b>0</b> -1			155	<b>U</b> -1		<b>0</b> 10		160
		Δla	Len	Met	Gln		Thr	Thr	Lvs	Δla		Thr	Gln	Tle	Δla	
212	шу 5	1114	псц		165	<b></b>	1111		270	170			<b></b>	110	175	110
	Ara	Gln	Val	Δla		Thr	Glv	Val	Gln		Tvr	Met	Tle	Val		Glv
216	**** 9	0111	• • • •	180	O <sub>T</sub>		017		185	1110	-1-			190		011
	Val	Tle	Tle		Δla	Δla	Len	Phe		Tvr	Tvr	Ala	Lvs		Met	Leu
220	·uı		195	200	1114	1114	200	200		-1-	-1-		205	3		200
	Phe	Thr		Thr	Asn	Asp	Lvs		Lvs	Len	Tle	Leu		Asn	Lvs	Glu
224		210			11011	1100	215		<b>1</b>	200		220			_,,	014
	Asn		His	Trp	Thr	Thr		Met	Asp	Thr	Phe	Phe	Ara	Thr	Ser	Pro
228						230	- / -		p		235		5			240
		Val	Tle	Ala	Thr		Asp	Tle	Gln	Asn						
232					245					250						
	<210	)> SE	O II	NO:												
		l> LE														
		2> TY														
					Vari	lola	vir	ıs								
		)> SE														
						Ser	Ile	Gln	Thr	Thr	Val	Asn	Thr	Leu	Ser	Glu
243		J-1			5					10					15	
		Tle	Ser	Ser	_	Len	Glu	Gln	Glu		Asn	Ala	Ser	Ala		Thr
247	3			20	_,,			<b>0111</b>	25					30	<b>V</b>	
	Lvs	Cvs	Asp		Glu	Tle	Glv	Asn	_	Tvr	Ile	Ara	Gln		His	Gly
251	_, _	0,0	35		020		<b>U</b> -1	40		-1-		3	45			<b>0</b> -1
	Cvs	Δsn		Thr	Val	Lvs	Asn		Cvs	Ser	Δla	Asp		Asp	Δla	Gln
255	Cyb	50				_,_	55		0,0			60				<b></b>
	T.e.11		Δla	Val	T.em	Ser		Δla	Thr	Glu	Thr	Tyr	Ser	Glv	Len	Thr
259				*41	<b>u</b>	70		1114		J_ u	75	-1-		1	u	80
		Glu	Gln	Lvs	ΔΊа		Val	Pro	Ala	Met		Thr	Ala	Ala	Len	
263	-10	JIU	<b>V Z</b> 11	-1.0	85	- 1 -	741	-10	.114	90	- 110				95	
	Tle	Gln	Thr	Ser		Aen	Thr	17a 1	Va ใ		Agn	Phe	Glu	Δsn		Val
200	116	O 111	T 11T	ـ ت	Val	WOII	T 11T	Val	V CL	A- 9	A D	1116	ΨLU	-1011	- Y -	VUL

Input Set : A:\5130000006 Sequence Listing.txt
Output Set: N:\CRF4\07192006\J620787A.raw

267				100					105					110		
	Lvs	Gln	Thr		Asn	Ser	Ser	Ala		Val	Asp	Asn	Lvs		Lys	Ile
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	Gln	Asn		Ile	Ile	Asp	Glu	Cvs	Tvr	Glv	Ala	Pro	Glv	Ser	Pro	Thr
275		130				•	135	•	•	-		140	•			
	Asn		Glu	Phe	Ile	Asn		Glv	Ser	Ser	Lvs	Glv	Asn	Cvs	Ala	Ile
	145					150		1			155	1		-2-		160
		Ala	Leu	Met	Gln		Thr	Thr	Lvs	Ala	Thr	Thr	Gln	Ile	Ala	
283					165				-1-	170					175	
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287	3	0		180			017		185		-1-			190		1
	Val	Ile	Ile		Ala	Ala	Leu	Phe		Tvr	Tvr	Ala	Lvs		Met	Leu
291			195					200		-1-	-1-		205	5		
	Phe	Thr		Thr	Asn	Asp	Lvs		Lvs	Leu	Ile	Leu		Asn	Lys	Glu
295		210					215		-1-			220			-2-	
	Asn		His	Trp	Thr	Thr		Met	Asp	Thr	Phe		Ara	Thr	Ser	Pro
	225					230	-1-				235		3			240
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	<210	)> SI	EO II	O NO:												
	<211															
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					ORMA!	ION:	: Coi	nsens	sus s	seau	ence	for	SEO	ID 1	NOs.	1-4
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J 1 1	~ = 0 (	J > 01	SQUEI	NCE:	5											
						Ser	Ile	Gln	Thr	Thr	Val	Asn	Thr	Leu	Ser	Glu
	Met					Ser	Ile	Gln	Thr	Thr	Val	Asn	Thr	Leu	Ser 15	Glu
316 317	Met 1	Gly	Āla	Ala	Ala 5					10					15	
316 317	Met 1	Gly	Āla	Ala	Ala 5					10						
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316 317 320 321	Met 1 Arg	Gly Ile	Ala	Ala Ser 20	Ala 5 Lys	Leu	Glu	Gln	Glu 25	10 Ala	Asn	Ala	Ser	Ala 30	15 Gln	Thr
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316 317 320 321 324 325	Met 1 Arg Lys	Gly Ile Cys	Ala Ser Asp 35	Ala Ser 20 Ile	Ala 5 Lys Glu	Leu Ile	Glu Gly	Gln Asn 40	Glu 25 Phe	10 Ala Tyr	Asn Ile	Ala Arg	Ser Gln 45	Ala 30 Asn	15 Gln His	Thr Gly
316 317 320 321 324 325 328 329	Met 1 Arg Lys Cys	Gly Ile Cys Asn 50	Ala Ser Asp 35 Leu	Ala Ser 20 Ile Thr	Ala 5 Lys Glu Val	Leu Ile Lys	Glu Gly Asn 55	Gln Asn 40 Met	Glu 25 Phe Cys	10 Ala Tyr Ser	Asn Ile Ala	Ala Arg Asp 60	Ser Gln 45 Ala	Ala 30 Asn Asp	15 Gln His	Thr Gly Gln
316 317 320 321 324 325 328 329	Met 1 Arg Lys Cys	Gly Ile Cys Asn 50	Ala Ser Asp 35 Leu	Ala Ser 20 Ile Thr	Ala 5 Lys Glu Val	Leu Ile Lys	Glu Gly Asn 55	Gln Asn 40 Met	Glu 25 Phe Cys	10 Ala Tyr Ser	Asn Ile Ala	Ala Arg Asp 60	Ser Gln 45 Ala	Ala 30 Asn Asp	15 Gln His Ala	Thr Gly Gln
316 317 320 321 324 325 328 329 332 333	Met 1 Arg Lys Cys Leu 65	Gly Ile Cys Asn 50 Asp	Ala Ser Asp 35 Leu Ala	Ala Ser 20 Ile Thr	Ala 5 Lys Glu Val Leu	Leu Ile Lys Ser 70	Glu Gly Asn 55 Ala	Gln Asn 40 Met Ala	Glu 25 Phe Cys Thr	10 Ala Tyr Ser Glu	Asn Ile Ala Thr 75	Ala Arg Asp 60 Tyr	Ser Gln 45 Ala Ser	Ala 30 Asn Asp Gly	15 Gln His Ala	Thr Gly Gln Thr
316 317 320 321 324 325 328 329 332 333	Met 1 Arg Lys Cys Leu 65	Gly Ile Cys Asn 50 Asp	Ala Ser Asp 35 Leu Ala	Ala Ser 20 Ile Thr	Ala 5 Lys Glu Val Leu	Leu Ile Lys Ser 70	Glu Gly Asn 55 Ala	Gln Asn 40 Met Ala	Glu 25 Phe Cys Thr	10 Ala Tyr Ser Glu	Asn Ile Ala Thr 75	Ala Arg Asp 60 Tyr	Ser Gln 45 Ala Ser	Ala 30 Asn Asp Gly	15 Gln His Ala Leu	Thr Gly Gln Thr
316 317 320 321 324 325 328 329 332 333 336 337	Met 1 Arg Lys Cys Leu 65 Pro	Gly Ile Cys Asn 50 Asp	Ala Ser Asp 35 Leu Ala Gln	Ala Ser 20 Ile Thr Val Lys	Ala 5 Lys Glu Val Leu Ala 85	Leu Ile Lys Ser 70 Tyr	Glu Gly Asn 55 Ala Val	Gln Asn 40 Met Ala Pro	Glu 25 Phe Cys Thr	10 Ala Tyr Ser Glu Met 90	Asn Ile Ala Thr 75 Phe	Ala Arg Asp 60 Tyr	Ser Gln 45 Ala Ser Ala	Ala 30 Asn Asp Gly Ala	15 Gln His Ala Leu Leu	Thr Gly Gln Thr 80 Asn
316 317 320 321 324 325 328 329 332 333 336 337 340	Met 1 Arg Lys Cys Leu 65 Pro	Gly Ile Cys Asn 50 Asp Glu Gln	Ala Ser Asp 35 Leu Ala Gln Thr	Ala Ser 20 Ile Thr Val Lys Ser	Ala 5 Lys Glu Val Leu Ala 85 Val	Leu Ile Lys Ser 70 Tyr	Glu Gly Asn 55 Ala Val Thr	Gln Asn 40 Met Ala Pro	Glu 25 Phe Cys Thr Ala	10 Ala Tyr Ser Glu Met 90 Arg	Asn Ile Ala Thr 75 Phe	Ala Arg Asp 60 Tyr Thr	Ser Gln 45 Ala Ser Ala Glu	Ala 30 Asn Asp Gly Ala Asn	15 Gln His Ala Leu Leu 95 Tyr	Thr Gly Gln Thr 80 Asn
316 317 320 321 324 325 328 329 332 333 336 337 340 341	Met 1 Arg Lys Cys Leu 65 Pro	Gly Ile Cys Asn 50 Asp Glu Gln	Ala Ser Asp 35 Leu Ala Gln Thr	Ala Ser 20 Ile Thr Val Lys Ser 100	Ala 5 Lys Glu Val Leu Ala 85 Val	Leu Ile Lys Ser 70 Tyr Asn	Glu Gly Asn 55 Ala Val	Gln Asn 40 Met Ala Pro Val	Glu 25 Phe Cys Thr Ala Val 105	10 Ala Tyr Ser Glu Met 90 Arg	Asn Ile Ala Thr 75 Phe Asp	Ala Arg Asp 60 Tyr Thr	Ser Gln 45 Ala Ser Ala Glu	Ala 30 Asn Asp Gly Ala Asn 110	15 Gln His Ala Leu Leu 95 Tyr	Thr Gly Gln Thr 80 Asn
316 317 320 321 324 325 328 329 332 333 336 337 340 341	Met 1 Arg Lys Cys Leu 65 Pro	Gly Ile Cys Asn 50 Asp Glu Gln	Ala Ser Asp 35 Leu Ala Gln Thr	Ala Ser 20 Ile Thr Val Lys Ser 100	Ala 5 Lys Glu Val Leu Ala 85 Val	Leu Ile Lys Ser 70 Tyr Asn	Glu Gly Asn 55 Ala Val	Gln Asn 40 Met Ala Pro Val	Glu 25 Phe Cys Thr Ala Val 105	10 Ala Tyr Ser Glu Met 90 Arg	Asn Ile Ala Thr 75 Phe Asp	Ala Arg Asp 60 Tyr Thr	Ser Gln 45 Ala Ser Ala Glu	Ala 30 Asn Asp Gly Ala Asn 110	15 Gln His Ala Leu Leu 95 Tyr	Thr Gly Gln Thr 80 Asn Val
316 317 320 321 324 325 328 329 332 333 336 337 340 341 344 345	Met 1 Arg Lys Cys Leu 65 Pro Ile Lys	Gly Ile Cys Asn 50 Asp Glu Gln Gln	Ala Ser Asp 35 Leu Ala Gln Thr Thr	Ala Ser 20 Ile Thr Val Lys Ser 100 Cys	Ala 5 Lys Glu Val Leu Ala 85 Val	Leu Ile Lys Ser 70 Tyr Asn Ser	Glu Gly Asn 55 Ala Val Thr Ser	Gln Asn 40 Met Ala Pro Val Ala 120	Glu 25 Phe Cys Thr Ala Val 105 Val	10 Ala Tyr Ser Glu Met 90 Arg	Asn Ile Ala Thr 75 Phe Asp	Ala Arg Asp 60 Tyr Thr Phe Asn	Ser Gln 45 Ala Ser Ala Glu Lys 125	Ala 30 Asn Asp Gly Ala Asn 110 Leu	15 Gln His Ala Leu Leu 95 Tyr	Thr Gly Gln Thr 80 Asn Val
316 317 320 321 324 325 328 329 332 333 336 337 340 341 344 345	Met 1 Arg Lys Cys Leu 65 Pro Ile Lys	Gly Ile Cys Asn 50 Asp Glu Gln Gln	Ala Ser Asp 35 Leu Ala Gln Thr Thr	Ala Ser 20 Ile Thr Val Lys Ser 100 Cys	Ala 5 Lys Glu Val Leu Ala 85 Val	Leu Ile Lys Ser 70 Tyr Asn Ser	Glu Gly Asn 55 Ala Val Thr Ser	Gln Asn 40 Met Ala Pro Val Ala 120	Glu 25 Phe Cys Thr Ala Val 105 Val	10 Ala Tyr Ser Glu Met 90 Arg	Asn Ile Ala Thr 75 Phe Asp	Ala Arg Asp 60 Tyr Thr Phe Asn	Ser Gln 45 Ala Ser Ala Glu Lys 125	Ala 30 Asn Asp Gly Ala Asn 110 Leu	15 Gln His Ala Leu Leu 95 Tyr	Thr Gly Gln Thr 80 Asn Val Ile
316 317 320 321 324 325 328 329 332 333 336 337 340 341 344 345 348 349	Met 1 Arg Lys Cys Leu 65 Pro Ile Lys Gln	Gly Ile Cys Asn 50 Asp Glu Gln Gln Asn 130	Ala Ser Asp 35 Leu Ala Gln Thr Thr 115 Val	Ala Ser 20 Ile Thr Val Lys Ser 100 Cys Ile	Ala 5 Lys Glu Val Leu Ala 85 Val Asn Ile	Leu Ile Lys Ser 70 Tyr Asn Ser Asp	Glu Gly Asn 55 Ala Val Thr Ser Glu 135	Gln Asn 40 Met Ala Pro Val Ala 120 Cys	Glu 25 Phe Cys Thr Ala Val 105 Val	10 Ala Tyr Ser Glu Met 90 Arg Val Gly	Asn Ile Ala Thr 75 Phe Asp Asp	Ala Arg Asp 60 Tyr Thr Phe Asn Pro 140	Ser Gln 45 Ala Ser Ala Glu Lys 125 Gly	Ala 30 Asn Asp Gly Ala Asn 110 Leu Ser	15 Gln His Ala Leu Leu 95 Tyr	Thr Gly Gln Thr 80 Asn Val Ile Thr
316 317 320 321 324 325 328 329 332 333 336 337 340 341 345 348 349 352 353	Met 1 Arg Lys Cys Leu 65 Pro Ile Lys Gln Asn 145	Gly Ile Cys Asn 50 Asp Glu Gln Gln Asn 130 Leu	Ala Ser Asp 35 Leu Ala Gln Thr Thr 115 Val Glu	Ala Ser 20 Ile Thr Val Lys Ser 100 Cys Ile Phe	Ala 5 Lys Glu Val Leu Ala 85 Val Asn Ile Ile	Leu Ile Lys Ser 70 Tyr Asn Ser Asp Asn 150	Glu Gly Asn 55 Ala Val Thr Ser Glu 135 Thr	Gln Asn 40 Met Ala Pro Val Ala 120 Cys Gly	Glu 25 Phe Cys Thr Ala Val 105 Val Tyr Ser	10 Ala Tyr Ser Glu Met 90 Arg Val Gly Ser	Asn Ile Ala Thr 75 Phe Asp Asp Ala Lys 155	Ala Arg Asp 60 Tyr Thr Phe Asn Pro 140 Gly	Ser Gln 45 Ala Ser Ala Glu Lys 125 Gly Asn	Ala 30 Asn Asp Gly Ala Asn 110 Leu Ser Cys	15 Gln His Ala Leu Leu 95 Tyr Lys Pro	Thr Gly Gln Thr 80 Asn Val Ile Thr
316 317 320 321 324 325 328 329 332 333 336 337 340 341 345 348 349 352 353	Met 1 Arg Lys Cys Leu 65 Pro Ile Lys Gln Asn 145	Gly Ile Cys Asn 50 Asp Glu Gln Gln Asn 130 Leu	Ala Ser Asp 35 Leu Ala Gln Thr Thr 115 Val Glu	Ala Ser 20 Ile Thr Val Lys Ser 100 Cys Ile Phe	Ala 5 Lys Glu Val Leu Ala 85 Val Asn Ile Ile	Leu Ile Lys Ser 70 Tyr Asn Ser Asp Asn 150	Glu Gly Asn 55 Ala Val Thr Ser Glu 135 Thr	Gln Asn 40 Met Ala Pro Val Ala 120 Cys Gly	Glu 25 Phe Cys Thr Ala Val 105 Val Tyr Ser	10 Ala Tyr Ser Glu Met 90 Arg Val Gly Ser	Asn Ile Ala Thr 75 Phe Asp Asp Ala Lys 155	Ala Arg Asp 60 Tyr Thr Phe Asn Pro 140 Gly	Ser Gln 45 Ala Ser Ala Glu Lys 125 Gly Asn	Ala 30 Asn Asp Gly Ala Asn 110 Leu Ser Cys	15 Gln His Ala Leu Leu 95 Tyr Lys Pro	Thr Gly Gln Thr 80 Asn Val Ile Thr
316 317 320 321 325 328 329 332 333 336 337 340 341 345 348 349 352 353 356 357	Met 1 Arg Lys Cys Leu 65 Pro Ile Lys Gln Asn 145 Lys	Gly Ile Cys Asn 50 Asp Glu Gln Gln Asn 130 Leu Ala	Ala Ser Asp 35 Leu Ala Gln Thr Thr 115 Val Glu Leu	Ala Ser 20 Ile Thr Val Lys Ser 100 Cys Ile Phe Met	Ala 5 Lys Glu Val Leu Ala 85 Val Asn Ile Ile Gln 165	Leu Ile Lys Ser 70 Tyr Asn Ser Asp Asn 150 Leu	Glu Gly Asn 55 Ala Val Thr Ser Glu 135 Thr	Gln Asn 40 Met Ala Pro Val Ala 120 Cys Gly Thr	Glu 25 Phe Cys Thr Ala Val 105 Val Tyr Ser Lys	10 Ala Tyr Ser Glu Met 90 Arg Val Gly Ser Ala 170	Asn Ile Ala Thr 75 Phe Asp Asp Ala Lys 155 Thr	Ala Arg Asp 60 Tyr Thr Phe Asn Pro 140 Gly Thr	Ser Gln 45 Ala Ser Ala Glu Lys 125 Gly Asn Gln	Ala 30 Asn Asp Gly Ala Asn 110 Leu Ser Cys Ile	15 Gln His Ala Leu 95 Tyr Lys Pro Ala Ala 175	Thr Gly Gln Thr 80 Asn Val Ile Thr Ile 160 Pro
316 317 320 321 325 328 329 332 333 336 337 340 341 345 348 349 352 353 356 357	Met 1 Arg Lys Cys Leu 65 Pro Ile Lys Gln Asn 145 Lys	Gly Ile Cys Asn 50 Asp Glu Gln Gln Asn 130 Leu Ala	Ala Ser Asp 35 Leu Ala Gln Thr Thr 115 Val Glu Leu	Ala Ser 20 Ile Thr Val Lys Ser 100 Cys Ile Phe Met	Ala 5 Lys Glu Val Leu Ala 85 Val Asn Ile Ile Gln 165	Leu Ile Lys Ser 70 Tyr Asn Ser Asp Asn 150 Leu	Glu Gly Asn 55 Ala Val Thr Ser Glu 135 Thr	Gln Asn 40 Met Ala Pro Val Ala 120 Cys Gly Thr	Glu 25 Phe Cys Thr Ala Val 105 Val Tyr Ser Lys	10 Ala Tyr Ser Glu Met 90 Arg Val Gly Ser Ala 170	Asn Ile Ala Thr 75 Phe Asp Asp Ala Lys 155 Thr	Ala Arg Asp 60 Tyr Thr Phe Asn Pro 140 Gly Thr	Ser Gln 45 Ala Ser Ala Glu Lys 125 Gly Asn Gln	Ala 30 Asn Asp Gly Ala Asn 110 Leu Ser Cys Ile	15 Gln His Ala Leu 95 Tyr Lys Pro Ala Ala 175	Thr Gly Gln Thr 80 Asn Val Ile Thr

Input Set : A:\5130000006 Sequence Listing.txt
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361 185 364 Val Ile Ile Leu Ala Ala Leu Phe Met Tyr Tyr Ala Lys Arg Met Leu 195 200 368 Phe Thr Ser Thr Asn Asp Lys Ile Lys Leu Ile Leu Ala Asn Lys Glu 215 372 Asn Val His Trp Thr Thr Tyr Met Asp Thr Phe Phe Arg Thr Ser Pro 230 235 376 Met Val Ile Ala Thr Thr Asp Met Gln Asn 245 380 <210> SEQ ID NO: 6 381 <211> LENGTH: 110 382 <212> TYPE: PRT 383 <213> ORGANISM: Vaccinia virus 385 <400> SEQUENCE: 6 387 Met Asp Gly Thr Leu Phe Pro Gly Asp Asp Leu Ala Ile Pro Ala 391 Thr Glu Phe Phe Ser Thr Lys Ala Ala Lys Lys Pro Asp Arg Lys Arg 20 395 Glu Gln Ile Val Lys Ala Asp Glu Asp Asp Asn Glu Glu Thr Leu Lys 399 Gln Arq Leu Thr Asn Leu Glu Lys Lys Ile Thr Asn Val Thr Thr Lys 403 Phe Glu Gln Ile Glu Lys Cys Cys Lys Arg Asn Asp Glu Val Leu Phe 407 Arg Leu Glu Asn His Ala Glu Thr Leu Arg Ala Ala Met Ile Ser Leu 85 90 411 Ala Lys Lys Ile Asp Val Gln Thr Gly Arg Arg Pro Tyr Glu 100 105 415 <210> SEQ ID NO: 7 416 <211> LENGTH: 110 417 <212> TYPE: PRT 418 <213> ORGANISM: Vaccinia virus 420 <400> SEQUENCE: 7 422 Met Asp Gly Thr Leu Phe Pro Gly Asp Asp Leu Ala Ile Pro Ala 426 Thr Glu Phe Phe Ser Thr Lys Ala Asp Lys Lys Pro Glu Ala Lys Arq 430 Glu Ala Ile Val Lys Ala Asp Glu Asp Asp Asn Glu Glu Thr Leu Lys 40 434 Gln Arg Leu Thr Asn Leu Glu Lys Lys Ile Thr Asn Val Thr Thr Lys 55 438 Phe Glu Gln Ile Glu Lys Cys Cys Lys Arg Asn Asp Glu Val Leu Phe 70 75 442 Arg Leu Glu Asn His Ala Glu Thr Leu Arg Ala Ala Met Ile Ser Leu 446 Ala Lys Lys Ile Asp Val Gln Thr Gly Arg Arg Pro Tyr Glu 100 450 <210> SEQ ID NO: 8 451 <211> LENGTH: 110

Input Set : A:\5130000006 Sequence Listing.txt
Output Set: N:\CRF4\07192006\J620787A.raw

## Invalid <213> Response:

Use of "Artificial" only as "<213> Organism" response is incomplete, per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:5,10,15,20,27,32,33

VERIFICATION SUMMARY

. . . .

DATE: 07/19/2006 TIME: 08:57:21

PATENT APPLICATION: US/10/620,787A

Input Set : A:\5130000006 Sequence Listing.txt
Output Set: N:\CRF4\07192006\J620787A.raw